the driving-age population will increase more slowly. The baby-boom generation has already grown to auto-owning age; there is no corresponding wave of new car buyers to replace them. Second, as car ownership and second-car ownership have become extremely widespread, the market for new cars is increasingly becoming a replacement-car market, rather than a rapidly expanding first-purchase market. Third, consumers have been keeping cars longer. While partly a reflection of current economic conditions, this also reflects reductions in driving, perhaps caused by fuel-price increases.

For these reasons, the growth in auto sales will probably not return to the high rates (around 5 percent per year) that have been typical during the 1970s. Rather, most forecasts of future passenger car sales range from 10.6 to 12 million vehicles in 1985, and from 11.2 to 13.2 million in 1990 (see Table 3). When light trucks are included in the calculations as well, forecasts of total vehicle sales in 1985 range from 13.4 to 15.5 million units, with 1990 projections ranging from 14.5 to 16.9 million. Throughout this study, it is assumed that retail sales volume for new passenger cars and light trucks will reach about 13 million units in 1985 and 15 million by 1990--a figure typical of the forecasts summarized in Table 3. These higher sales levels will help preserve jobs in U. S. automobile manufacturing and related industries.

Because progress toward these levels promises to be gradual, however, and because the domestic automakers will need to continue to make rapid increases in productivity to remain competitive, major near-term recovery in auto-related employment appears unlikely. Several of the causes of this bleak outlook are the slow-growth nature of the market, the depth of the current recession and the improbability of a quick recovery, and the prospect of productivity gains.

These three causes are not directly addressed by H. R. 5133. Two other causes--increased importation of cars and offshore sourcing of parts--are the focus of H. R. 5133, which would control these through legislated limits.

The remaining chapters assess the likely effects of H. R. 5133 in restoring jobs. Chapter III focuses on the automobile industry and its suppliers. The final chapter explores the effects of H. R. 5133 on the U. S. economy in general.

TABLE 3. PROJECTIONS OF U.S. SALES OF PASSENGER CARS AND LIGHT TRUCKS ACCORDING TO VARIOUS SOURCES (1985 and 1990, in millions of units)

Sources	Vehicle Types	1985	1990
Data Resources, Inc. a/	Autos	10.6	11.6
	Light Trucks	2.8	3.5
	Total	13.4	15.1
Chase Econometrics b/	Autos	11.3	12.3
	Light Trucks	3.3	3.2
	Total	14.6	15.5
Wharton Econometric Forecasting Associates c/	Autos	11.8	12.5
	Light Trucks	3.0	3.9
	Total	14.8	16.4
Merrill Lynch Economics d/	Autos	11.5	11.2
	Light Trucks	3.2	3.3
	Total	14.7	14.5
Merrill Lynch Securities Research e/	Autos	11.5	11.5
	Light Trucks	3.2	3.5
	Total	14.7	15.0
Arthur Andersen, Second Delphi Forecast f/ Parts Supplier Panel	Autos	11.5	12.0
	Light Trucks	2.7	2.7
	Total	14.2	14.7
Government Panel	Autos	11.6	12.6
	Light Trucks	2.5	2.7
	Total	14.1	15.3
Financial Panel	Autos	11.5	12.2
	Light Trucks	2.2	2.5
	Total	13.7	14.7
Marketing Panel	Autos	12.0	13.2
	Light Trucks	3.4	3.7
	Total	15.4	16.9

(Continued)

TABLE 3. (Continued)

Sources	Vehicle Types	1985	1990
Sanford C. Bernstein g/	Autos	12.0	12.0
	Light Trucks	3.5	4.0
	Total	15.5	16.0
CBO (sales levels assumed in this study)	Autos	10.5	12.0
	Light Trucks	2.5	3.0
	Total	13.0	15.0

a. Data Resources, Inc. Long Term Forecast (Moderate Growth), July 1982.

b. Chase Econometrics Long Term Forecast (Moderate Growth), June 1982.

c. Wharton Econometric Forecasting Associates, derived from Wharton Annual and Industry Model Forecast, June 1982.

d. Michael Luckey, Vice President, Merrill Lynch Economics, July 1982.

e. Harvey Heinbach, Vice President, Merrill Lynch Securities Research, July 1982.

f. Arthur Andersen & Co., the Michigan Manufacturers Association, and the University of Michigan, U.S. Automotive Industry in the 1980s: A Domestic and Worldwide Perspective (The Second Delphi Forecast), July 1981.

g. David Eisenberg, Research Director, Automotive and Capital Goods, Sanford C. Bernstein & Co., Inc., July 1982.

CHAPTER III. POTENTIAL MICROECONOMIC EFFECTS

Once fully phased in, H. R. 5133 would require that foreign automotive firms manufacture 90 percent of their vehicles in the United States and Canada in order to be allowed to sell more than 500,000 imports a year in the United States. The chief purpose of this legislation is to preserve and create domestic jobs in automobile manufacturing.

Estimates of the bill's potential consequences on automotive employment vary widely, however. The Administration projects that 252,000 or fewer jobs would be saved in automobile manufacturing. In sharp contrast, the United Automobile Workers (UAW) estimates that 941,000 jobs would be preserved or created. These widely divergent estimates derive from different assumptions about how automobile manufacturers and consumers would respond to the restriction, as well as from varying views of how employment in automobile manufacturing relates to numbers of vehicles produced. Though there are some unanswered questions about these considerations, the range of likely outcomes appears far narrower than these divergent estimates suggest. To project the effects of H. R. 5133 on jobs in automobile manufacturing and related industries, this chapter examines four questions:

- How would production and sales of imported cars be affected by H. R. 5133?
- How much would car prices increase due to curtailment of imports?
- How much would sales of domestic cars increase as a result of import restrictions and related price increases?
- How many additional jobs would be created because of this increase in domestic sales?

These questions are addressed in the following four sections, which review the evidence and estimate the likely response in each case. The final section compares the Administration and UAW estimates to those

developed here, and evaluates them on the basis of the information presented in the first four sections.

Throughout this chapter, two general limitations should be kept in mind:

- The estimates of impacts on auto sales and automotive jobs assume that no retaliatory actions are taken by Japan or other nations. The effects of retaliation are examined in the following chapter.

- The examination of employment impacts focuses exclusively on the automobile manufacturing industry, suppliers of automotive parts, and other direct and indirect inputs to automobile manufacturing. It excludes any gain in jobs elsewhere in the economy because of increases in economic activity within the auto sector. General economic effects of this type are discussed in the following chapter, as are changes in auto industry productivity.

HOW WOULD PRODUCTION AND SALES OF IMPORTS BE AFFECTED?

While H. R. 5133, as written, could be interpreted in various ways, its clear intent is to require foreign automobile producers to locate in the United States if they sell in this country. 1/ The bill stipulates that, in order to sell more than 100,000 units (cars or light trucks) in the United States, a foreign vehicle producer must have to perform part of the manufacturing of these vehicles in the United States or Canada.

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1. As H. R. 5133 is written, some analysts believe that no firm could meet its terms because of a possible technical problem in the wording. As measured in the bill, the domestic content ratio is defined as 100 x added domestic content divided by wholesale price to U. S. dealers. If the numerator excludes advertising and domestic transportation costs, then the resulting ratio could be less than 90 percent even for vehicles whose every part was produced in the country. This analysis assumes that if such technical problems exist in the wording of H. R. 5133, they will be corrected, and that domestic transportation, advertising, and overhead would be included among the items counted as potential domestic content.

In 1981, seven foreign firms imported more than 100,000 cars and light trucks:

Toyota	714,000
Nissan (Datsun)	580,000
Honda	371,000
Toyo Kogyo (Mazda)	247,000
Subaru	152,000
Mitsubishi (Chrysler)	145,000
Volkswagen	144,000
Total, Seven Firms Above	2,353,000

In addition, another 400,000 cars and light trucks were imported by a dozen low-volume importers, each of whose sales were less than 100,000 units in 1981.

As is apparent from these sales statistics, the greatest direct effect of the bill would be on two large-volume Japanese firms--Toyota and Nissan (Datsun)--which could meet the terms of the bill in two distinct ways. Either they could relocate production facilities in the United States, or they could limit imports to under 100,000 units per year, so that no domestic-content restrictions would apply. Even if they built facilities in the United States, they would need to produce cars with at least 75 percent domestic content in order to sell more than 200,000 units. This is a stringent test, and it could not be met simply by assembling cars here. Indeed, assembly of finished cars, manufacturing of engines and transmissions, and stamping of body parts together account for less than half of the number of worker hours required to produce a car. This means that not only would Toyota and Nissan have to relocate their assembly, stamping, engine, and transmission facilities in the United States; they would also need to purchase substantial amounts of domestic parts and materials or get their suppliers to locate here as well.

While one of the bill's objectives is to encourage foreign automakers to locate production facilities in the United States, such a major relocation appears improbable for several reasons. First, of the cost advantage that the Japanese currently enjoy, as much as $1,400 per car comes from lower wage rates in Japan. Much of this component of their cost advantage would disappear if the Japanese located plants here and faced higher

U. S. wage schedules. Second, another $600 of the Japanese cost advantage derives from the requirement of substantially fewer labor hours per car under Japanese production practices. These savings, which stem from a variety of management techniques and labor practices, could probably not be fully captured if Japanese plants relocated here. For example, part of the savings come from close coordination with and proximity to numerous parts suppliers--patterns that minimize the costs of inventory, inbound transportation, materials handling, and warehousing. The U. S. market--which purchased 2.3 million passenger cars and light trucks out of more than 11 million Japanese automobiles produced in 1981--simply could not support a second, complete set of suppliers to Japanese cars. Even if Japanese firms located some facilities here, they would not enjoy the full advantage of close coordination and proximity that they now have in Japan. Third, the low valuation of the yen in terms of dollars has contributed to the Japanese cost advantage. As the Japanese automakers produced more of their car in the United States, this exchange-rate would be partially eroded. Fourth, the marketing advantage of Japanese automobiles could diminish if they were produced here. Much of the appeal of these cars to consumers appears linked to an image of quality part of which is supported by statistics on defect and repair rates. 2/ To the extent that it also derives from the "made in Japan" label, this image could be harmed by locating production facilities here. The recent difficulties experienced by Volkswagen of America in marketing the U. S.-built Rabbit illustrate this marketing risk. 3/ Finally, the U. S. firms themselves are getting more competitive in the subcompact car market and in production practices generally. By the time a Japanese complex was up and running, U. S. competition could be more severe than it is today.

For all these reasons, it appears unlikely that the Japanese response to H. R. 5133 would be to relocate massive production facilities here. Rather, the practical effect of the bill would ultimately be equivalent to a

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2. For example, a survey of readers conducted by Consumer Reports found that, in 1981, all Toyota and Datsun models showed a "trouble index" much better than average, while the leading domestic subcompact models generally showed a rating of average or worse than average on this index. See "Frequency-of-Repair Records," Consumer Reports, vol. 47, no. 4 (April 1982), pp. 198-207.

3. "Volkswagen's U. S. Sales Decline Sharply as Firm Gets Hurt by Image, Competition," Wall Street Journal (July 8, 1982), p. 21.

rigid import quota of 100,000 units per manufacturer per year. Under the provisions of the bill, any importer violating the appropriate domestic content requirement in some year would have a restriction imposed on it the following year limiting its sales to 75 percent of the number of motor vehicles that were entered during the year that the violation occurred. In effect, this penalty provision means that, if they did not relocate here or in Canada, the high-volume importers would face a series of successively more restrictive quotas as each year's sales were restricted to 75 percent of the previous year's sales, continuing until the imports from these firms fell to under 100,000 units per year. Under these penalty provisions, each of the seven high-volume importers listed earlier would eventually be bound by a limit of 100,000 units; this limit would be reached in 1985 by Volkswagen, Subaru, and Mitsubishi, in 1990 by Toyota and Nissan, and in the intervening years by the other high-volume importers. 4/

Low-volume importers, who bring in fewer than 100,000 units per year, would not be directly affected by H. R. 5133, although they might experience a surge in sales as other imports become unavailable.

Whether low-volume imports would capture a disproportionate share of sales of imported cars displaced by H. R. 5133 is unclear. This paper simply assumes that low-volume importers, together with U. S. firms, would capture an increment of sales proportional to their current sales volumes. This assumption probably overstates the additional auto sales and auto-related jobs that would be experienced by U. S. firms. Further, the paper assumes that, in the absence of price increases, each unit of import curtailed would be replaced by the sale of an additional unit by a domestic car producer or by a low-volume importer.

Foreign firms with U. S. auto plants would be particularly hard hit by H. R. 5133. At present, the chief firm of this sort is Volkswagen, which operates a plant in Westmoreland, Pennsylvania, whose capacity is around

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4. Dick K. Nanto, "Automobile Domestic Content Requirements (Revised)," Congressional Research Service Memorandum (undated); "Automobile Domestic Content Requirements (Revised)," (1982); and "Automobile Domestic Content Requirements," Congressional Research Service, (updated June 11, 1982).

240,000 Rabbits per year. 5/ Under H. R. 5133, these cars (which currently contain less than 75 percent domestic content) would be limited to sales of 200,000 in 1984 and after. Volkswagen would be forced to run its U. S. plant at less than capacity. In addition, unless it cut its U. S. production even further, it would also have to curtail its imported Audi and Porsche models. Relative to foreign firms that have no facilities in the United States, Volkswagen would be placed at a comparative disadvantage by H. R. 5133.

Among the major U. S. producers, GM would have the least difficulty complying with the 90 percent domestic requirement; Ford would come next, and Chrysler and American Motors would have the most difficulty complying. Each of the Big Four domestic firms has increasingly used foreign-produced components in recent years, and this trend is expected to continue in the future.

Currently, net imports of automotive parts represent about 5 percent of all parts produced in the United States, and many analysts expect the import share to grow in future years. 6/ As a result, one direct effect of H. R. 5133 on the Big Four would be to limit the future growth in use of foreign-produced parts. Another direct effect, which would be more substantial, would be the impact on U. S. car prices and sales volumes as competition from imports was reduced.

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5. Volkswagen plans to add a second plant in 1982, with an additional capacity of 185,000 vehicles. Honda's new U. S. plant in Marysville, Ohio, is scheduled to open in fall 1982; by May 1984, it is expected to produce 150,000 Accords annually. Nissan will open its Smyrna, Tennessee, truck manufacturing facility (with an ultimate capacity of 150,000 vehicles) by the end of 1983. Toyota, which already operates a truck bed plant in Long Beach, California, recently discussed with GM the possibility of using an idle GM factory in California to produce more than 200,000 vehicles, which would be distributed through GM dealerships.

6. Arthur Andersen and Co., The Michigan Manufacturers Association, and the University of Michigan, U. S. Automotive Industry in the 1980s: A Domestic and Worldwide Perspective (The Second Delphi Forecast--July 1981), pp. 11-13.

Before considering the impact of H. R. 5133 on car prices, it will be helpful to summarize its impact on future sales levels assuming that there were no resulting increases in vehicle price. These estimates will be developed further after the discussion of price effects.

Without any restriction of imports, total U. S. sales of cars and light trucks are assumed to grow to around 13 million units in 1985 and around 15 million units in 1990, and imported vehicles are assumed to capture about 25 percent of this market. 7/ Assuming that low-volume imports and high-volume imports shared proportionally in the growth of the number of imports, then sales of high-volume imports would grow from 2.35 million units in 1981 to 3.2 million units in 1990 (see top half of Table 4). Domestic manufacturers would sell 11.25 million units under these assumptions.

If imports were restricted through enactment of H. R. 5133, then sales of high-volume imports would decrease and sales of domestic vehicles and low-volume imports would rise. On the other hand, retaliatory actions by other nations would create economic disruptions that would offset some of the increase in domestic vehicle sales. This retaliatory impact is not addressed in this chapter, but is analyzed for the economy as a whole in the following chapter. Assuming that the restricted imports were replaced, unit for unit, by domestic vehicles and low-volume imports, the number of domestic vehicles sold would rise to 13.6 million units in 1990 (see bottom half of Table 4). Sales of imports would fall to 1.4 million units in 1990, only 700,000 of which would be supplied by the high-volume importers. 8/

The estimates shown in Table 4 are not a forecast of the sales effects of H. R. 5133 because they do not reflect the price increases that would probably result from this legislation, as discussed next.

HOW MUCH WOULD NEW CAR PRICES INCREASE?

Determining the effect of H. R. 5133 on the price of new vehicles is a crucial step in assessing its impact. Not only are prices the key

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7. See Chapter II for a discussion of these sales and market share assumptions.

8. The figures for high-volume imports are taken from Nanto.

TABLE 4. ESTIMATES OF AUTO AND LIGHT TRUCK SALES WITH AND WITHOUT H. R. 5133, ASSUMING NO INCREASE IN PRICES (In thousands of units)

	1985	1990
Base Case: No Restraint of Imports		
Low-volume imports	482	556
High-volume imports	2,768	3,194
Total imports	3,250	3,750
Total domestic	9,750	11,250
Total auto and light truck sales	13,000	15,000
H. R. 5133, Assuming No Price Increases a/		
Low-volume imports	553	682
High-volume imports	1,365	700
Total imports	1,918	1,382
Total domestic	11,082	13,618
Total auto and light truck sales	13,000	15,000

SOURCE: Congressional Budget Office.

a. These sales estimates assume no retaliatory actions by other nations. For net impacts including those caused by retaliation, please refer to Chapter IV.

determinant of the consumer cost of the bill; they are also the key determinant of the amount by which domestic car sales would increase, and thus central to estimating the impact on domestic employment. At present, Japanese producers tend to take the lead in setting prices for subcompact cars, and U. S. producers adjust their prices in response to Japanese actions. 9/ Without the restraining influence of Japanese cars,

9. Harbridge House, Inc., The Imported Automobile Industry (June 1979), p. 51; and Congressional Budget Office, Current Problems and Prospects of the U. S. Automobile Industry and Policies to Address Them (July 1980), p. 51.

which appear to enjoy a substantial cost advantage over U. S. cars, domestic car prices could rise and the profitability of domestic firms could increase.

The size of this price increase cannot be closely predicted, but several considerations can help guide judgments about it. The Japanese are thought to have a cost advantage of around $1,000 to $2,000 per subcompact car, according to widely publicized estimates made by William Abernathy and James Harbour, who trace the cost advantage chiefly to two sources. 10/ First, Japanese wages are lower than U. S. wages: in 1981, U. S. auto workers earned $17.55 per hour according to the Bureau of Labor Statistics; Japanese workers earned around $7.74. 11/ Assuming 200 hours

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10. See, for example: William J. Abernathy, Kim B. Clark, and Alan M. Kantrow, "The New Industrial Competition," Harvard Business Review, vol. 59, no. 5 (September-October, 1981), pp. 68-81; William J. Abernathy, James E. Harbour, and Jay M. Henn, "Productivity and Cost Advantages: Some Estimates for Major Automotive Producers," Harvard Business School Working Paper (February 13, 1981); Harbour and Associates, Inc., "Productivity Analysis of the North American and Japanese Automotive Manufacturers in the Manufacture of Subcompact and Compact Cars," and "Can Detroit Catch Up?," Fortune, vol. 105, no. 3 (February 8, 1982), pp. 34-9.

11. Bureau of Labor Statistics, "Hourly Compensation for Production Workers in Motor Vehicles and Equipment Manufacturing: 1981" (Provisional Estimates). The figures quoted are for hourly compensation, including overtime premiums, bonuses, vacations, and insurance. The corresponding estimates for all manufacturing are $11.06 per hour for the United States and $6.23 per hour for Japan. If the rates for all manufacturing are typical of the suppliers to the automobile industry, then the labor of U. S. suppliers is 37 percent less costly than that of the auto manufacturers, while that of Japanese suppliers is only 19.5 percent less costly than their auto manufacturers. Thus, the apparent cost advantage due to labor rates observed among auto producers cannot be assumed to apply directly to suppliers. Some recent observations on Japanese suppliers are reported by John Hartley, "How Supplier System Cuts Japanese Costs," Automotive News (July 12, 1982), p. 2.

per vehicle, these figures would imply a differential of over $1,900 per vehicle if all labor hours were paid at these rates. However, many of the hours embedded in a car are furnished by suppliers whose labor rates, both in the United States and in Japan, fall below those of the vehicle manufacturers themselves. The absolute difference between U. S. and Japanese rates is probably smaller for these suppliers than for the auto manufacturers. Adjusting for this, the differential due to labor rates could be around $1,400 per car (Table 5).

In addition, the Japanese can build a subcompact car with only about 56 percent of the labor hours used in U. S. production, according to Abernathy and Harbour. This conclusion, based upon observations of the U. S. auto manufacturing firms themselves, has frequently been extended to cover their suppliers as well, although much less evidence is available concerning the labor content of vehicle components. This is a sizable extension, since the observed data are less than half of the total. Nevertheless, assuming that the same labor advantage extends through all stages of the production process, a Japanese car would require about 111 labor hours instead of the 200 required in a U. S. car. 12/ Most of the difference is attributed to a variety of management and worker practices, rather than to differences in plant and equipment. If all Japanese workers were paid at the rate of $7.74 per hour, this would imply a saving of around $700 per car. As above, however, the saving would be smaller since wage scales are lower in supplier industries. Thus, the saving due to reduced labor content could be around $600 per car (Table 5).

The Japanese cost advantage has increased in recent months because of further devaluation of the yen. The wages upon which the above estimates are based were converted to dollars when the yen traded at 220.1 yen to the dollar; it has traded recently around 255. Assuming that 75 percent of a Japanese car is produced in Japan from Japanese parts, labor, and materials, this shift in exchange rates adds around $500 more to the Japanese advantage computed earlier. Offsetting this, the Japanese

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12. The numbers developed here do not match those of the Abernathy/Harbour work cited above, which reported that 80 hours were required for a Japanese subcompact and 144 for a U. S. subcompact. For consistency with assumptions applied later in this chapter, the Abernathy/Harbour estimates were increased proportionally to yield a total labor content of 200 hours per car.

TABLE 5. ILLUSTRATION OF JAPANESE COST ADVANTAGE IN THE MANUFACTURING OF SUBCOMPACT CARS

Total Advantage	Hours per Subcompact Car	Compensation per Hour	Labor Cost per Car
		(in dollars)	
Japan			
Automobile manufacturers	53	7.74	410
Suppliers, materials, etc.	58	6.23	361
Total	111		771
U.S.A.			
Automobile manufacturers	82	17.55	1,439
Suppliers, materials, etc.	118	11.06	1,305
Total	200		2,744
Difference in Labor Cost per Car			1,973
Transportation and Customs Duties			(400)
Yen Devaluation Since 1981			500
Total Japanese Cost Advantage			2,073

Wage-Rate Advantage	Hours per Subcompact Car (U.S.)	Difference in Wage Rate: U.S. Less Japan	Advantage Gained at Japanese Rates
Automobile manufacturers	82	9.81	804
Suppliers, materials, etc.	118	4.83	570
Total Wage-Rate Advantage			1,374

Productivity Advantage	Difference in Hours per Subcompact Car: U.S. Less Japan	Japanese Compensation per Hour	Japanese Advantage
Automobile manufacturing	29	7.74	224
Suppliers, materials, etc.	60	6.23	374
Total Productivity Advantage	89		598

SOURCE: CBO computation based upon:
Wage rates: Bureau of Labor Statistics
Total hours per car: CBO assumption
Relative Productivity: Abernathy and Harbour (see text).

have a cost disadvantage of about $400 per vehicle attributable to ocean shipping costs and U. S. customs duties. Taken together, wage rates, productivity, yen develuation, and shipping and duty costs result in a net cost advantage of over $2,000 per subcompact car, if the Abernathy/Harbour findings are updated, as summarized in Table 5.

No specific adjustment has been made in the Abernathy/Harbour analysis for any additional Japanese capital expenditures to achieve higher productivity. To the extent such capital investment is required, it would offset some of the reported cost advantage. However, except in the stamping of body parts, the Japanese do not appear to have a technological advantage. Rather, the difference in productivity has been traced to a number of management practices, including just-in-time inventory systems, defect prevention systems, an organization pyramid with many fewer tiers between workers and executives, and nonadversarial union and supplier relations. These practices do not necessarily involve additional capital expenditures. Hence, the Japanese cost advantage would probably not be much diminished if capital expenditures were included in the analysis.

Part of the estimated Japanese cost advantage is based upon relatively well-documented differences in wage rates and labor productivity within the automobile companies. Part is based upon an application of this observed difference to the operations of parts and materials suppliers. All of it is subject to considerable interpretation, and different analysts have attributed it variously to Japanese management techniques, production practices, labor relations conditions, and cultural attitudes. The U. S. automobile companies have not attacked the claims that the Japanese enjoy a cost advantage of $1,000 to $2,000; but neither have they offered much additional analysis to support it.

One critique of the Abernathy-Harbour estimates concludes that they are too high for several reasons. First, the study is based upon data from 1979, a year when U. S. auto firms were in a slump and when Japanese firms were increasing their production. Thus, part of the observed productivity difference may be traced to temporary efficiency advantages related to capacity utilization. Second, the estimates are national averages in which each of the U. S. Big Four is given equal weight. A sales-weighted average would have given much greater weight to GM, whose production costs are beneath those of the other three. Similarly, it averages together both new and old plants, and so does not necessarily reflect the difference between a new U. S. plant and its Japanese counterpart. Third, the

production of automobile parts may be less labor-intensive than production of cars, so that the extension of similar labor savings to the suppliers may be overstated as a result. 13/

Under the chairmanship of William Abernathy, a recent review of this question by the National Academy of Engineering found sizable differences in productivity and total employee costs per unit, depending upon the data used. Nevertheless, it concluded that "the results point to a significant differential ranging from $1,000 to more than $1,400." 14/

Even if the Japanese do enjoy this large cost advantage, if is not known to what extent they pass this through to consumers via lower prices as against absorbing it in higher profits per unit. While the retail price differentials for U. S. and Japanese subcompact cars are generally smaller than the reported price advantage, any attempt to relate this difference to production costs is confounded by uncertainties as to how U. S. firms allocate costs and profits among the different car size groups, and by uncertainty as to the effective costs of various inputs to Japanese vehicles.

Whatever the amount of the Japanese cost advantage, U. S. firms have clearly not been the price leaders in the subcompact field but have responded to Japanese price changes. Restrictions on Japanese imports would relieve this restraining force on U. S. subcompact car prices. Indeed, if the number of Japanese imports was restricted, the Japanese firms themselves would likely raise prices in order to compensate for the loss in sales volume with higher profits per car sold.

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13. Jose A. Gomez-Ibanez and David Harrison, Jr., "Imports and the Future of the U. S. Automobile Industry," American Economic Review, vol. 72, no. 2 (May 1982), pp. 319-23.

14. Automobile Panel, Committee on Technology and International Economic and Trade Issues of the Assembly of Engineering, National Research Council, and the Office of the Foreign Secretary, National Academy of Engineering, The Competitive Status of the U. S. Auto Industry: A Study of the Influences of Technology in Determining International Industrial Competitive Advantage (July 1982), p. 156.

It has been suggested that one way of gauging the extent of potential Japanese and U. S. price increases is to analyze and extrapolate the response of Japanese and U. S. firms to the voluntary import restrictions imposed by the Japanese in 1981. This experience does not convincingly demonstrate that vehicle prices would rise, however. There is some evidence that the Japanese upgraded the average car imported under these voluntary restrictions by adding on additional features, and that this upgrading was reflected in higher prices. At the same time, this upgrading appears to be part of a longer trend, possibly unrelated to the import restrictions. In addition, the recession-induced slump in sales may have forced the Japanese to keep prices low in order to sell their planned volume under a voluntary import quota enacted by the Japanese in 1981. Furthermore, the recent drop in the value of the yen relative to the dollar makes it difficult to interpret any pricing shifts. In short, the experience provided by the voluntary import restrictions does not offer much guidance about what would happen in response to H. R. 5133, since it is too brief and too riddled with major changes in economic conditions to allow a confident assessment of the role of the import restrictions.

While estimates must remain highly uncertain, car prices could possibly increase by $500 per unit (about 6 percent) as a result of H. R. 5133, relative to what they would have been otherwise. This judgment reflects the fact that U. S. production costs appear higher than Japanese costs, and assumes that, if Japanese competition was restricted, U. S. firms would respond partly by raising prices. Because the magnitude of the price increase cannot be predicted, this chapter also discusses the implications of two other conceivable outcomes--no price increase, and a price increase of $1,000 per unit.

HOW MUCH WOULD SALES OF DOMESTIC CARS INCREASE?

H. R. 5133 would increase the sale of new domestic cars by restricting competition from imports, but the increase would be tempered by the increases in new car prices it would stimulate. This study assumes that an increase of 1 percent in price would cause a decrease of 1 percent in the number of new vehicles sold, a response that is consistent with a number of

economic analyses of the automobile market. 15/ It also assumes that the demand for automobiles would not be affected by any retaliatory actions taken by Japan or other nations in response to H. R. 5133. This latter assumption, which is unrealistic, will be withdrawn in the following chapter when the full effects of the bill are discussed. For the present, however, estimates of automobile sales and automotive employment will be developed assuming no retaliatory actions by other nations so that the direct industry impacts of the bill, as estimated by this analysis, can be meaningfully compared with those of other analyses, notably those of the Administration and the UAW.

Under the above assumptions, if new car prices rose by $500 per unit after H. R. 5133 was enacted, then sales of domestic cars would be around 10.5 million units in 1985 and 12.9 million units in 1990. Compared to what would happen if H. R. 5133 was not enacted, this means that total sales, domestic plus import, would fall from a potential 15.0 million to 14.2 million in 1990. Since imports would be restricted, sales of domestic vehicles would be around 12.9 million units, up from the approximately 11.3 million domestic vehicles that would have been sold without H. R. 5133. Thus, although total sales would fall under H. R. 5133, domestic sales would increase by about 733,000 units in 1985 and 1,632,000 in 1990 (Table 6). These sales increases are highly sensitive to assumptions about prices, however. If prices increased by $1,000 per vehicle, fewer than one million additional sales would result in 1990. If no price increases occurred, more than two million additional cars would be sold--although this appears unlikely.

HOW MANY ADDITIONAL JOBS WOULD BE CREATED?

The increase in domestic car sales created by H. R. 5133 would create additional jobs in three ways through:

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15. See, for example, Jose A. Gomez-Ibanez, Robert A. Leone, and Stephen X. O'Connell, "Restraining Foreign Competition: Is Bad Policy Also Bad Business?" (May 1982), p. 10; Sorrel Wildhorn et al., How to Save Gasoline: Public Policy Alternatives for the Automobile (Rand Corporation, 1974), p. 68; and Lawrence J. White, The Automobile Industry Since 1945 (Harvard University Press, 1971), pp. 94-5.